

L Number	Hits	Search Text	DB	Time stamp
1	422	((524/871) or (524/875)).CCLS.	USPAT; US-PGPUB	2003/03/14 10:41
2	57	((524/871) or (524/875)).CCLS.) and polycarbonate\$	USPAT; US-PGPUB	2003/03/14 10:59
3	85	((524/871) or (524/875)).CCLS.) and adhesiv\$ not (((524/871) or (524/875)).CCLS.) and polycarbonate\$)	USPAT; US-PGPUB	2003/03/14 11:12
4	110	(524/280).CCLS.	USPAT; US-PGPUB	2003/03/14 11:12
5	16	((524/280).CCLS.) and adhesiv\$	USPAT; US-PGPUB	2003/03/14 11:19
6	514	(528/370).CCLS.	USPAT; US-PGPUB	2003/03/14 11:19
7	72	((528/370).CCLS.) and adhesiv\$	USPAT; US-PGPUB	2003/03/14 11:47
8	2206	((528/65) or (528/77) or (528/85)).CCLS.	USPAT; US-PGPUB	2003/03/14 11:48
9	2180	((528/65) or (528/77) or (528/85)).CCLS.) not (((528/370).CCLS.) and adhesiv\$) or ((524/280).CCLS.) and adhesiv\$) or (((524/871) or (524/875)).CCLS.) and adhesiv\$ not (((524/871) or (524/875)).CCLS.) and polycarbonate\$) or (((524/871) or (524/875)).CCLS.) and polycarbonate\$))	USPAT; US-PGPUB	2003/03/14 11:48
10	462	((528/65) or (528/77) or (528/85)).CCLS.) not (((528/370).CCLS.) and adhesiv\$) or ((524/280).CCLS.) and adhesiv\$) or (((524/871) or (524/875)).CCLS.) and adhesiv\$ not (((524/871) or (524/875)).CCLS.) and polycarbonate\$) or (((524/871) or (524/875)).CCLS.) and polycarbonate\$)))	USPAT; US-PGPUB	2003/03/14 11:49
11	162	((528/65) or (528/77) or (528/85)).CCLS.) not (((528/370).CCLS.) and adhesiv\$) or ((524/280).CCLS.) and adhesiv\$) or (((524/871) or (524/875)).CCLS.) and adhesiv\$ not (((524/871) or (524/875)).CCLS.) and polycarbonate\$) or (((524/871) or (524/875)).CCLS.) and polycarbonate\$))) and polycarbonat\$) and adhesiv\$	USPAT; US-PGPUB	2003/03/14 11:49

L Number	Hits	Search Text	DB	Time stamp
1	1273	(252/511).CCLS.	USPAT; US-PGPUB	2003/03/14 14:35
2	102	((252/511).CCLS.) and adhes\$[ab]	USPAT; US-PGPUB	2003/03/14 14:37

(FILE 'HOME' ENTERED AT 16:57:33 ON 14 MAR 2003)

FILE 'REGISTRY' ENTERED AT 16:57:40 ON 14 MAR 2003  
L1 4340 S PC/PCT AND DIOL?  
L2 600 S L1 AND DIISOCYANAT?

FILE 'CA' ENTERED AT 16:59:48 ON 14 MAR 2003  
L3 422 S L2  
L4 61 S L3 AND ADHESIV?

L4 ANSWER 44 OF 61 CA COPYRIGHT 2003 ACS

AN 113:42185 CA

TI Boiling water-resistant polycarbonate-polyurethane **adhesives**

IN Taniguchi, Toshiro; Tanaka, Jiro

PA Kuraray Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 7 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM C09J175-04

ICA C08G018-44

CC 38-3 (Plastics Fabrication and Uses)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	JP 02032185	A2	19900201	JP 1988-182267	19880721
PRAI	JP 1988-182267		19880721		

AB Title **adhesives** with excellent flexibility and low-temp. adhesion, useful for bonding plastics, metals, rubbers, fibers, etc., contain polyurethane polyols of no.-av. mol. wt. (.hivin.Mn) 3000-70,000, prepd. from diisocyanates and polycarbonate polyols of .hivin.Mn 600-5000 having repeating units CH<sub>2</sub>CHMe(CH<sub>2</sub>)<sub>6</sub>OCO<sub>2</sub>. Thus, ethylene carbonate 2100, 2-methyl-1,8-octanediol (I) 2283, and 1,9-nonanediol (II) 571 parts were polymd. in vacuo to give a polyol, 1500 parts of which was further

treated with 122 parts I and 31 parts II at 200.degree. to give a polycarbonate diol (.hivin.Mn 1000). Then, 200 g of this diol and 17 g TDI were polymd.

in toluene contg. of Ti(OCHMe<sub>2</sub>)<sub>4</sub> at 108.degree. for 10 h to give a 30% soln. of polyurethane diol (.hivin.Mn 20,000), 100 parts of which was mixed with 6 parts Coronate HL (1:3 trimethylolpropane/HMDI adduct) to give an **adhesive**. Poly(ethylene terephthalate) film, Al foil, and polypropylene film were laminated using the **adhesive** to give a material showing T peel strength 0.75 kg/15 mm initially, 0.77 kg/15 mm after 5 h in H<sub>2</sub>O at 120.degree., and 0.74 kg/15 mm after 4 wk in aq. AcOH at 25.degree., vs. 0.45, 0.43, and 0.43 kg/15 mm, resp., using a polyurethane **adhesive** prepd. similarly from a polycarbonate diol with .hivin.Mn 500.

ST polycarbonate polyurethane **adhesive** water resistance; boiling water resistance **adhesive** polyurethane; low temp adhesion polyurethane polycarbonate; flexibility **adhesive** polycarbonate polyurethane; methyloctanediol polycarbonate polyurethane **adhesive** retortable; nonanediol polycarbonate polyurethane **adhesive** sterilizable; isononylene glycol polycarbonate polyurethane **adhesive**; autoclavable packaging film laminate **adhesive**

IT Metals, uses and miscellaneous

RL: USES (Uses)

(**adhesives** for, polycarbonate-polyurethanes as, with good boiling water resistance and flexibility)

IT Water-resistant materials

(**adhesives**, flexible, heat-resistant, methyloctanediol-based polycarbonate-polyurethanes, manuf. of)

IT Heat-resistant materials

(**adhesives**, flexible, water-resistant, methyloctanediol-based polycarbonate-polyurethanes, manuf. of)

IT **Adhesives**

(flexible, heat- and water-resistant, methyloctanediol-based polycarbonate-polyurethanes, manuf. of)

IT Packaging materials  
(laminated films, multilayer, sterilizable, plastic/metal,  
polycarbonate-polyurethane **adhesives** for)

IT Urethane polymers, uses and miscellaneous  
RL: TEM (Technical or engineered material use); USES (Uses)  
(polycarbonate-, **adhesives**, boiling water-resistant, with  
good low-temp. adhesion and flexibility)

IT Polycarbonates, uses and miscellaneous  
RL: TEM (Technical or engineered material use); USES (Uses)  
(polyurethane-, **adhesives**, boiling water-resistant, with good  
low-temp. adhesion and flexibility)

IT 9003-07-0, Polypropylene 25038-59-9, Poly(ethylene terephthalate), uses  
and miscellaneous  
RL: USES (Uses)  
(films, laminates, **adhesives** for, boiling water-resistant  
polycarbonate-polyurethanes as)

IT 7429-90-5, Aluminum, uses and miscellaneous  
RL: USES (Uses)  
(foil, laminates, **adhesives** for, boiling water-resistant  
polycarbonate-polyurethanes as)

IT **128116-61-0P 128116-62-1P 128116-63-2P**  
RL: PREP (Preparation)  
(manuf. of, as boiling water-resistant **adhesives** with good  
low-temp. adhesion and flexibility)

L4 ANSWER 61 OF 61 CA COPYRIGHT 2003 ACS  
 AN 72:80026 CA  
 TI Polycarbonate polyurethanes as **adhesives**  
 PA Farbenfabriken Bayer A.-G.  
 SO Fr., 6 pp.  
 CODEN: FRXXAK  
 DT Patent  
 LA French  
 IC C08G; C09J  
 CC 37 (Plastics Fabrication and Uses)  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	---	-----	-----	-----
PI	FR 1577640		19690808		
PRAI	DE		19670817		
AB	The title compds. with improved peel resistance and storage stability are prepd. from a hydroxylated polycarbonate and a diisocyanate. Thus, a mixt. of 400 g molten 1,6-hexanediol polycarbonate and 40 g 1,5-naphthylene diisocyanate was heated 8 hr at 140.degree., and the product was dild. with MeCOEt to 50 P viscosity (20.degree.) to give an <b>adhesive</b> soln. useful for prepg. composites with a peel resistance unaffected with humidity and heat. A polyurethane <b>adhesive</b> , prepd. from poly(ethylene adipate) and tolylene diisocyanate, was sensitive to humidity and heat.				
ST	polycarbonate polyurethanes <b>adhesives</b> ; polyurethanes polycarbonate <b>adhesives</b> ; <b>adhesives</b> polycarbonate polyurethanes				
IT	Urethane polymers, uses and miscellaneous RL: TEM (Technical or engineered material use); USES (Uses) ( <b>adhesives</b> , contg. hexanediol polycarbonates, for improved peel resistance)				
IT	<b>Adhesives</b> , preparation (hexanediol polycarbonates and urethane polymers, for improved peel resistance)				
IT	26428-45-5 <b>26428-46-6</b> RL: TEM (Technical or engineered material use); USES (Uses) ( <b>adhesives</b> )				

L4 ANSWER 58 OF 61 CA COPYRIGHT 2003 ACS  
 AN 82:141258 CA  
 TI Impact-resistant laminates of glass plate and polycarbonate polyruethanes  
 PA PPG Industries, Inc.  
 SO Fr. Demande, 43 pp.  
 CODEN: FRXXBL  
 DT Patent  
 LA French  
 IC B32B; B60J; C03C  
 CC 37-3 (Plastics Fabrication and Uses)  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	FR 2208783	A1	19740628	FR 1972-42818	19721201
	FR 2208783	B1	19761203		
PRAI	FR 1972-42818		19721201		

AB Energy absorbing, shear-resistant, optically transparent safety glass was  
 prepd. by laminating glass sheets with an **adhesive** interlayer of  
 a polymer prepd. by treating a poly(oxyethylene carbonate) glycol with a  
 diisocyanate. Thus, 62 g ethylene glycol was heated with 1408 g ethylene  
 carbonate in the presence of K<sub>2</sub>CO<sub>3</sub> catalyst to give a polymer with OH  
 index 129.5, CO<sub>2</sub> content 11.8, and mol. wt. 866. This polymer was heated  
 with 1,4-butanediol and a mixt. of cis- and trans-4,4'-  
 methylenebis(cyclohexyl isocyanate) in a molar ration 1.00:1.832:2.832 to  
 give a polycarbonate urethane. A sheet of this polymer was laminated  
 between 2 glass sheets 3.2 mm thick in 45 min at 135.degree. and 14

kg/cm<sup>2</sup>

to give a 0.92 mm thick interlayer. The laminates cracked under impact

of

a steel ball weighing 2.27 kg at -18.degree. but withstood an impact of

37

km/hr at 49.degree.. Comparison impact speed for a laminate with a  
 polyvinyl butral interlayer at the same temp. was 21 km/hr.

ST polycarbonate urethane glass laminate; safety glass polycarbonate  
 urethane; polyoxyethylene carbonate glycol isocyanate polymer

IT Urethane polymers, uses and miscellaneous

RL: USES (Uses)

(polycarbonate-, laminates with glass, impact-resistant)

IT Glass

RL: USES (Uses)

(safety, polycarbonate urethane-laminated)

IT 50601-80-4 55120-95-1 55120-96-2 55120-97-3 **55250-55-0**

RL: USES (Uses)

(laminates with glass, impact-resistant)

L4 ANSWER 57 OF 61 CA COPYRIGHT 2003 ACS  
 AN 83:80737 CA  
 TI Energy absorbing polycarbonate-urethane laminate  
 PA PPG Industries, Inc., USA  
 SO Neth. Appl., 34 pp.  
 CODEN: NAXXAN  
 DT Patent  
 LA Dutch  
 IC C03C; C08G; B32B  
 CC 37-3 (Plastics Fabrication and Uses)  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	NL 7216387	A	19740605	NL 1972-16387	19721201
PRAI	NL 1972-16387		19721201		

AB Safety glass laminates were manufd. using as **adhesives**  
 polyurethanes from OH-terminated linear aliph. polycarbonates of av. mol.  
 wt. 500-5000, diisocyanates, and chain extenders of mol. wt. .apprx.250.  
 Thus, 618.4 g ethylene carbonate-ethylene glycol polymer [27306-33-8]

with  
 av. mol. wt. 799, ether-carbonate ratio 3.17, and OH no. 140.5 was dried,  
 mixed with 120.2 g 1,4-butanediol and 553.1 g 4,4'-  
 methylenebis(cyclohexyl isocyanate), heated 8 min at 104.degree. C while  
 the pressure was reduced to 7 mm, and heated 20 hr at 130.degree. C,  
 giving a polyurethane [50601-80-4] with inherent viscosity 0.75  
 (30.degree.C, 0.5% in N-methyl-2-pyrrolidone). Laminates were prepd.

from  
 2 sheets of 1/8 in. glass and a 0.043 in. polymer interlayer by heating

45  
 min at 350.degree.F/200 psi and aged 1 week at room temp., and had av.  
 speed for penetration by a 5 lb steel ball 14 and 25 mph at 70 and  
 120.degree.F, resp., compared with 24 and 13 mph, resp., for a control  
 with a polyvinyl butyral interlayer.

ST safety glass polyurethane **adhesive**; laminated glass polyurethane  
**adhesive**; polycarbonate polyurethane **adhesive**

IT **Adhesives**

(polycarbonate-based polyurethanes, for safety glass)

IT Urethane polymers, uses and miscellaneous

RL: USES (Uses)

(polycarbonate-based, **adhesives**, for safety glass)

IT Glass

RL: USES (Uses)

(safety, **adhesives** for, polycarbonate based polyurethanes as)

IT 50601-80-4 55120-95-1 55120-96-2 55120-97-3 **55250-55-0**

**56778-87-1**

RL: TEM (Technical or engineered material use); USES (Uses)

(**adhesives**, for safety glass)

IT 27306-33-8

RL: USES (Uses)

(polyurethanes from, for **adhesives**)